UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/689,785	10/13/2000	Greg Sadowski	15-4-1139.00	8114

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EXAMINER
CHUNG, DANIEL J

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/689,785	Applicant(s) SADOWSKI, GREG
	Examiner Daniel J Chung	Art Unit 2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>21 May 2003</u>.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-23* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1-23 are presented for examination. This office action is in response to

the amendment filed on 5-21-2003.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Cohn (5,712,995) in view of AAPA (Applicant's Admitted Prior Art).

Regarding claim 1, Cohn discloses that the claimed feature of a method for

spatially compositing digital video images with a tile pattern library, comprising the steps

of: b) choosing a tile pattern ["saved layout", "predefined layout"] from the tile pattern

library ["a file", "other storage"] c) creating a compositing window [i.e. "exterior or outer

window/layout" in Fig 8] within a display area [140] of a compositor, wherein a shape of

created compositing window matches a shape of a periphery of chosen tile pattern and

wherein created compositing window is formed by pixels within the display area; d)

decomposing created compositing window into a number of tiles ["panes" or "windows";

210-212], wherein a shape and a position of each of the tiles matches a shape and a

position of a corresponding tile in chosen tile pattern, and wherein each of the tiles is

formed by pixels within the display area; e) assigning each tile of the tiles [210-212] to a

corresponding digital video display unit ["application"; 150-152] of a corresponding

graphics pipeline; and f) receiving, at each tile of the tiles, an image output of assigned

corresponding digital video display unit, thereby spatially compositing digital video

images with a tile pattern library. (See Abstract, Fig 6-8, Fig 11, col 34 line 45-54, col 38

line 59-62, col 41 line 51-col 42 line 19)

Cohn does not specifically disclose that "assigning each tile to a corresponding

digital video display unit of a corresponding graphics pipeline". However, such

limitations are shown in the 'Background of the Invention' of Applicant's Admitted Prior

Art. (See p.2 line 3-p. 3 line 16) [i.e. "To increase rendering speed, computer graphics

processes have been decomposed into standard functions performed in sequential

stage of a graphics pipeline", "The geometry stage often is further decomposed into

more functional stages, each of which can have an associated processor to perform

operations] It would have been obvious to one skilled in the art to incorporate the

teaching of AAPA into the teaching of Cohn, in order to "increase rendering speed" (See

p. 2 line 3, p.2 8-10 in AAPA), as such improvement (i.e. using multiple graphics

pipelines) is also advantageously desirable in the teaching of Cohn for displaying each

applications corresponding to each assigned regions [windows or panes] with faster

processing time. (eliminating unnecessary time delays)

Regarding claim 14, claim 14 is similar in scope to the claim 1, and thus the rejection to claim 1 hereinabove is also applicable to claim 14.

Claims 2-4,8-13 and 15-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohn in view of AAPA, and further in view of Hashimoto et al (6,515,673).

Regarding claim 2, Cohn fails to teach that the step of counting digital video display units whose image outputs will be spatially composited by the compositor such that counted digital video display units determines a maximum for the amount of tiles in chosen tile pattern. However, Hashimoto et al discloses that immersive video involves creating [view window determination; 953] multiple environment maps [tiles]. (See Fig 5-9, col 11 line 38-57) It would have been obvious to one skilled in the art to incorporate the teaching of Hashimoto et al into the teaching of Cohn, in order to provide proper number of windows or tiles for optimizing system's performance, as such improvement is also advantageously desirable in the teaching of Cohn for eliminating unnecessary pane partitions steps in Cohn's system thereby save processing time and cost.

Regarding claims 3 and 10, refer to the discussion for the claim 2 hereinabove, Hashimoto discloses that each frame in a dynamic sequence of frames of digital video images. (See col 3 line 5-9)

Regarding claim 4, Cohn discloses the parameters that define each of the tiles are variable. (See Fig 8, Fig 9, Fig 13)

Regarding claim 8, Cohn discloses that steps are performed by a tile compositing controller. (See Fig 6)

Regarding claim 9, Cohn discloses that after step d), the step of communicating, to the compositor, the parameters that define the compositing window and the parameters that define each of the tiles. (See Fig 6, Fig 14-15)

Regarding claims 11-13, Cohn discloses that communicating step occurs through a channel separate from a channel used to communicate a frame of digital video images, and communicating step minimizes an amount of data, obtaining an index code, needed to convey the parameters that define the compositing window and the parameters that define each of the tiles. (See Fig 5, Fig 9, col 10 line 18-54)

Regarding claims 15-17, claims 15-17 are similar in scope to the claims 2 and 8-9, and thus the rejections to claims 2 and 8-9 hereinabove are also applicable to claims 15-17.

Regarding claims 18-19 and 21, Cohn fails to teach that communications medium meets Digital Visual Interface specifications, and communications medium is a Transitional Minimized Differential Signal data link and Inter Integrated Circuit bus. However, this would have been obvious to one having ordinary skill in the art at the time of Applicant's invention, in order to provide correct data type through a communication mediums, which are available for commercial.

Regarding claims 20 and 22-23, claims 20 and 22-23 are similar in scope to the claims 10 and 12-13, and thus the rejections to claims 10 and 12-13 hereinabove are also applicable to claims 20 and 22-23.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohn and AAPA in view of Hashimoto et al (6,515,673) and further in view of Smith et al (6,223,183).

Regarding claims 5-7, Cohn fails to teach that an area of each of the tiles is a inverse function of a complexity of the image output of assigned corresponding digital video display unit. However, Smith discloses that implementing specify sets of views [tile] to describe the complex objects. (See col 6 line 4-15, col 8 lien 60-65) It would have been obvious to one skilled in the art to incorporate the teaching of Smith into the

teaching of Cohn, in order to improve readability of complex image, as such
improvement is also advantageously desirable in the teaching of Cohn.

**Claims 1-23 are once again rejected under 35 U.S.C. 103(a) as being
unpatentable over Cohn (5,712,995) in view of Duluk, Jr. et al (6,552,723).**

Regarding claim 1, Cohn discloses that the claimed feature of a method for
spatially compositing digital video images with a tile pattern library, comprising the steps
of: b) choosing a tile pattern ["saved layout", "predefined layout"] from the tile pattern
library ["a file", "other storage"] c) creating a compositing window [i.e. "exterior or outer
window/layout" in Fig 8] within a display area [140] of a compositor, wherein a shape of
created compositing window matches a shape of a periphery of chosen tile pattern and
wherein created compositing window is formed by pixels within the display area; d)
decomposing created compositing window into a number of tiles ["panes" or "windows";
210-212], wherein a shape and a position of each of the tiles matches a shape and a
position of a corresponding tile in chosen tile pattern, and wherein each of the tiles is
formed by pixels within the display area; e) assigning each tile of the tiles [210-212] to a
corresponding digital video display unit ["application"; 150-152] of a corresponding
graphics pipeline; and f) receiving, at each tile of the tiles, an image output of assigned
corresponding digital video display unit, thereby spatially compositing digital video

images with a tile pattern library. (See Abstract, Fig 6-8, Fig 11, col 34 line 45-54, col 38 line 59-62, col 41 line 51-col 42 line 19)

Cohn does not specifically disclose that "assigning each tile to a corresponding digital video display unit of a corresponding graphics pipeline". However, such limitations are shown in the teaching of Duluk, Jr. et al. (See Abstract line 1-14, col 2 line 36-47, col 4 line 44-62, col 7 line 41-47, col 8 line 46-50, col 26 line 26-37, col 27 line 1-15, col 28 line 12-29) [i.e. "a tiled 3-D graphics pipeline architecture"] It would have been obvious to one skilled in the art to incorporate the teaching of Duluk into the teaching of Cohn, in order to "efficiently operate on smaller amounts of image data" or "present an opportunity to utilize specialized, higher performance graphics hardware into the graphic pipeline." (See col 2 line 42-47 in Duluk), as such improvement (i.e. using multiple graphics pipelines) is also advantageously desirable in the teaching of Cohn for displaying each applications corresponding to each assigned regions [windows or panes] with effective operation and higher performance.

Regarding claim 2, refer to the discussion for the claim 1 herainabove, Duluk discloses that a) counting digital video display units whose image outputs will be spatially composited by the compositor such that counted digital video display units determines a maximum for the amount of tiles in chosen tile pattern. (See col 20 line 61-67, col 22 line 16-17, col 26 line 51-63)

Regarding claims 3 and 10, refer to the discussion for the claim 2 hereinabove, Hashimoto discloses that each frame in a dynamic sequence of frames of digital video images. (See col 3 line 5-9)

Regarding claim 4, Cohn discloses the parameters that define each of the tiles are variable. (See Fig 8, Fig 9, Fig 13)

Regarding claim 5, refer to the discussion for the claim 1 herainabove, Duluk discloses that an area of each of the tiles is a function of a complexity of the image output of assigned corresponding digital video display unit. (See col 1 line 58-64, col 3 line 38-65, col 6 line 38-44, col 25 line 60-67)

Regarding claim 6, refer to the discussion for the claim 1 herainabove, Duluk discloses that chosen tile pattern takes into account the complexity of the image output of each of counted digital video display units. (See col 1 line 58-64, col 3 line 38-65, col 6 line 38-44, col 25 line 60-67)

Regarding claim 7, refer to the discussion for the claim 1 herainabove, Duluk discloses that the function is an inverse function. (See col 1 line 58-64, col 3 line 38-65, col 6 line 38-44, col 25 line 60-67)

Regarding claim 8, Cohn discloses that steps are performed by a tile compositing

controller. (See Fig 6)

Regarding claim 9, Cohn discloses that after step d), the step of communicating,

to the compositor, the parameters that define the compositing window and the

parameters that define each of the tiles. (See Fig 6, Fig 14-15)

Regarding claims 11-13, Cohn discloses that communicating step occurs through

a channel separate from a channel used to communicate a frame of digital video

images, and communicating step minimizes an amount of data, obtaining an index

code, needed to convey the parameters that define the compositing window and the

parameters that define each of the tiles. (See Fig 5, Fig 9, col 10 line 18-54)

Regarding claims 14-17, claims 14-17 are similar in scope to the claims 1-2 and

8-9, and thus the rejections to claims 1-2 and 8-9 hereinabove are also applicable to

claims 14-17.

Regarding claims 18-19 and 21, Cohn fails to teach that communications

medium meets Digital Visual Interface specifications, and communications medium is a

Transitional Minimized Differential Signal data link and Inter Integrated Circuit bus.

However, this would have been obvious to one having ordinary skill in the art at the time

of Applicant's invention, in order to provide correct data type through a communication

mediums, which are available for commercial.

Regarding claims 20 and 22-23, claims 20 and 22-23 are similar in scope to the

claims 10 and 12-13, and thus the rejections to claims 10 and 12-13 hereinabove are

also applicable to claims 20 and 22-23.

Response to Arguments/Amendments

Applicant's arguments with respect to claim1-23 have been considered but are

moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment ("graphics pipeline") necessitated the new ground(s) of

rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set

forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (703) 306-3419. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

djc
July 17, 2003

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600